

II. Postscript to a Paper "On the Deflection of the Plumb-line in India, caused by the Attraction of the Himalayan Mountains." By the Venerable Archdeacon PRATT. Communicated by Professor STOKES, Sec. R.S. Received February 21, 1859.

(Abstract.)

Since transmitting his Paper "On the deflection of the Plumb-line in India caused by the attraction of the Himalaya Mountains*," the author has had the advantage of seeing the pages of Major R. Strachey's work on the physical geography of the Himalayas, now passing through the press ; and being permitted to make use of them, he availed himself of the important information therein contained to add a postscript to his former communication.

Major Strachey thinks that none of the numerous ranges commonly marked on maps of Thibet, have any special definite existence as mountain chains, apart from the general mass of the table-land ; and that this country should not be considered to be as if in the interval between the two so-called chains of the Himalaya and Kouenlun, but that it is in reality the summit of a great protuberance, above the general level of the earth's surface, of which the supposed Kouenlun and Himalaya are nothing more than the north and south faces, while the other ranges are but corrugations of the table-land more or less marked. The plains of India which skirt the foot of the table-land, to an extent of 1500 miles, nowhere have an elevation exceeding 1200 feet above the sea, the average being much less ; and there is reason to think that the northern plateau of Yarkend and Khotan, like the country about Bukhara, lies at a very small elevation, probably not more than 1000 or 2000 feet above the sea, while on the borders of the Caspian the surface descends below the sea-level.

On comparing the information contained in Major Strachey's work with the assumptions as to height above the sea-level, adopted by the author in his former paper from the best data then in his possession, it appears that the mean height of the table-land was considerably under-estimated ; while on the other hand attracting masses were supposed to lie still further north which really have no existence.

* Proc. Roy. Soc. vol. ix. p. 493.

The author has not recomputed the total attraction of all the disturbing masses, but has merely given in this postscript a computation of the meridional component of the attraction of the table-land *alone*. In accordance with the new information, the height of the table-land is assumed to be uniform, and to be equal to $2\frac{2}{3}$ miles above the level of Kalia, that is, about 15,000 feet above the sea-level. The resulting northern deflections are as follows:—

At Kalia	19''·85
At Kalia	10''·28
At Damargida	4''·29

Hence the errors produced in the astronomical amplitudes will be $9''·57$ and $5''·99$, which much exceed the errors ($5''·236$ and $-3''·791$) brought to light by the survey, on the assumption that the ellipticity of the Indian arc is the mean ellipticity of the whole earth; and the discrepancy will be still further increased when the attraction of the nearer masses is also taken into account.

The new information regarding the nature of the country north of the Himalayas does not, it thus appears, relieve the subject of its difficulties; and no geodetic calculations can be of service in the problem of the figure of the earth, nor indeed in mapping the country with extreme precision, till these perplexities are removed by the deflection being found and allowed for.

March 24th, 1859.

Sir BENJAMIN C. BRODIE, Bart., President, in the Chair.

The following communications were read:—

- I. "On the Conic of Five-point Contact at any point of a Plane Curve." By A. CAYLEY, Esq., F.R.S. Received March 1, 1859.

(Abstract.)

The tangent is a line passing through two consecutive points of a plane curve, and we may in like manner consider the conic which passes through five consecutive points of a plane curve; and as there are certain singular points, viz. the points of inflexion, where three consecutive points of the curve lie in a line, so there are singular